Effective one-body description of binary black holes and its extensions

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About me

- 24 years old
- From a small village near Perugia

Melezzole (TR)

Background

- Bachelor Degree in Physics - University of Perugia

  - Thesis: "Dall'entanglement al quantum teleportation"
    Supervisor: Marta Orselli

- Master Degree in Theoretical Physics - University of Perugia

  - Thesis: "Event horizon of charged black hole binary systems"
   Supervisor: Marta Orselli

PhD Research Project

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and its extensions**

The aim of this research project is to develop a systematic method for investigating how a 2-body system is modified by an external influence

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- R is the length/time scale of the 2-body system

- L is the length/time scale of the external influence
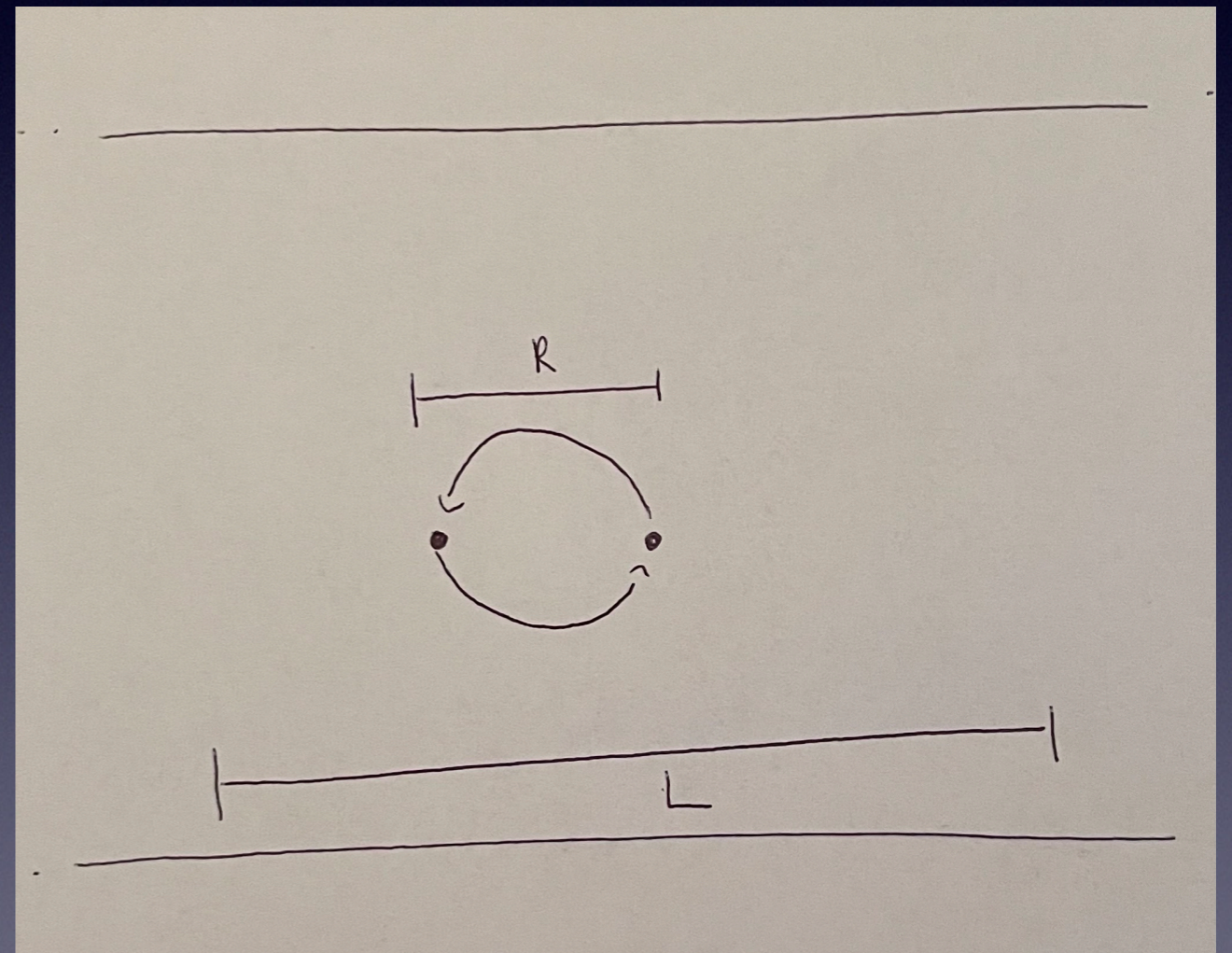
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- Assuming R << L we plan to develop an analytical method that captures the dynamics up to some order in an expansion in R/L

- The methodology we plan to use takes inspiration from the Matched Asymptotic Expansions method

- For the 2-body system we will develop a modification of the Effective One Body approach to include the modification for the metric due to the presence of an external influence

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- This research project could help understand how the presence of a third body modifies the emission of gravitational waves from a binary system
- The interferometers of new generation will be able to detect this kind of signals